


## 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** 4CR 0408 2K-HS-Härter Low VOC standard
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Hardening agent/ Curing agent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
4CR Vertriebsgesellschaft mbH  
Donaustraße 2  
94469 Deggendorf  
Tel.: +49 (0) 4841/665015  
Fax: +49 (0) 4841/665016  
e-Mail: 4cr@b2bmail.eu
- **Emergency telephone number:** +49(0)700 24112112 (MIP)

## 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
-  Xi; Sensitising
- R43: May cause sensitisation by skin contact.
- R10-52/53-66-67: Flammable. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.
- **Information concerning particular hazards for human and environment:**  
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.  
At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.  
Has a narcotizing effect.
- **Classification system:**  
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

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- **Label elements**
- **Labelling according to EU guidelines:**  
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.
- **Code letter and hazard designation of product:**  
Xi Irritant
- **Hazard-determining components of labelling:**  
Hexamethylene diisocyanate, oligomers
- **Risk phrases:**
  - 10 Flammable.
  - 43 May cause sensitisation by skin contact.
  - 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
  - 66 Repeated exposure may cause skin dryness or cracking.
  - 67 Vapours may cause drowsiness and dizziness.
- **Safety phrases:**
  - 2 Keep out of the reach of children.
  - 23 Do not breathe fumes/aerosol.
  - 24/25 Avoid contact with skin and eyes.
  - 37 Wear suitable gloves.
  - 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 1)

46 If swallowed, seek medical advice immediately and show this container or label.

· **Special labelling of certain preparations:**

Contains isocyanates. See information supplied by the manufacturer

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 28182-81-2 NLP: 500-060-2	Hexamethylene diisocyanate, oligomers ☒ Xi R43 ⚠ Skin Sens. 1, H317	50-100%
CAS: 123-86-4 EINECS: 204-658-1	n-butyl acetate R10-66-67 ⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	10-25%
CAS: 108-65-6 EINECS: 203-603-9	2-methoxy-1-methylethyl acetate ☒ Xi R36 R10 ⚠ Flam. Liq. 3, H226; ⚠ Eye Irrit. 2, H319	10-25%
CAS: 112-07-2 EINECS: 203-933-3	2-butoxyethyl acetate ☒ Xn R20/21 ⚠ Acute Tox. 4, H312; Acute Tox. 4, H332	2.5-10%
CAS: 64742-95-6 EINECS: 265-199-0	Solvent naphtha (petroleum), light arom. ☒ Xn R65; ☒ Xi R37; ☒ N R51/53 R10-66-67 ⚠ Flam. Liq. 3, H226; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Chronic 2, H411; ⚠ STOT SE 3, H335+H336	2.5-10%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

### 4 First aid measures

· **Description of first aid measures**

· **General information:** In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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(Contd. on page 3)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 2)

### 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)  
Carbon monoxide (CO)  
Hydrogen cyanide (HCN)
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
  - **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
  - **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents  
Contain and collect spillages with non-combustible absorbent materials (e.g. sand, earth, diatomaceous earth) and place in a suitable container.  
Decontaminate immediately with suitable mixture (flammable):
    - as such usable (inflammatory!):
 

water	45 Vol.%
ethanol or isopropanol	50 Vol.%
ammonia solution (Density= 0.88)	5 Vol.%
    - alternatively (non-flammable):
 

sodium carbonate	5 Vol.%
water	95 Vol.%
- Add the same decontaminant to any residues and allow to stand for several days in a non-sealed container until no further reaction occurs. Once this stage is reached, close the container and dispose of in accordance with the waste regulations (see Section 13).
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.  
Persons with a history of asthma, allergies or chronic or recurrent respiratory diseases should only be employed in processes in which this product is used under appropriate medical supervision.
- **Information about fire - and explosion protection:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.

(Contd. on page 4)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 3)

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:**  
Do not store together with reducing agents, heavy-metal compounds, acids and alkalis.  
Store away from foodstuffs.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Store separately from oxidising agents, strongly alkaline and strongly acidic materials, amines, alcohol and water.
- **Storage class:** 3
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

<b>28182-81-2 Hexamethylene diisocyanate, oligomers</b>	
EBW ()	Short-term value: 0.5 mg/m <sup>3</sup> exposition evaluation valu TRGS 430 (EBW)
<b>123-86-4 n-butyl acetate</b>	
WEL ()	Short-term value: 966 mg/m <sup>3</sup> , 200 ppm Long-term value: 724 mg/m <sup>3</sup> , 150 ppm
<b>108-65-6 2-methoxy-1-methylethyl acetate</b>	
WEL ()	Short-term value: 548 mg/m <sup>3</sup> , 100 ppm Long-term value: 274 mg/m <sup>3</sup> , 50 ppm Sk
<b>112-07-2 2-butoxyethyl acetate</b>	
WEL ()	Short-term value: 50 ppm Long-term value: 20 ppm Sk

- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**  
All personal protective equipment, including respiratory protective equipment, used to control exposure to hazardous substances must be selected to meet the requirements of the COSHH Regulations.
- **General protective and hygienic measures:**  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Do not inhale gases / fumes / aerosols.
- **Respiratory protection:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

(Contd. on page 5)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 4)

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** Fluid  
**Colour:** According to product specification

· **Odour:** Characteristic

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

**Melting point/Melting range:** Undetermined.

**Boiling point/Boiling range:** 124°C

· **Flash point:** 30°C (DIN 53213)

· **Ignition temperature:** 280°C (DIN 51794)

· **Decomposition temperature:** Not determined.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· **Explosion limits:**

**Lower:** 1.2 Vol %

**Upper:** 10.8 Vol %

· **Vapour pressure at 20°C:** 10.7 hPa

· **Density at 20°C:** 1.036 g/cm<sup>3</sup> (DIN 53217)

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with water:**

Not miscible or difficult to mix.

(Contd. on page 6)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 5)

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|---|--------------------|
| · <b>Segregation coefficient (n-octanol/water):</b> Not determined.   |                    |
| · <b>Viscosity:</b>   |                    |
| <b>Dynamic:</b>   | Not determined.    |
| <b>Kinematic at 20°C:</b>   | 13 s (DIN 53211/4) |
| · <b>Solvent content:</b>   |                    |
| <b>Organic solvents:</b>  | 46.0 %             |
| <b>VOC (EC)</b>   | 477.0 g/l          |
| · <b>Solids content (weight-%):</b> 54.0 %                            |                    |
| · <b>Other information</b> No further relevant information available. |                    |

### 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**  
Possible in traces.  
Nitrogen oxides  
Hydrogen chloride (HCl)  
Hydrogen cyanide (prussic acid)  
Carbon monoxide  
Nitrogen oxides (NOx)

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

**64742-95-6 Solvent naphtha (petroleum), light arom.**

Oral	LD50	>6800 mg/kg (rat)
Dermal	LD50	>3400 mg/kg (rab)
Inhalative	LC50/4 h	>10.2 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**  
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:  
Irritant
- **Sensitisation** May cause sensitisation by skin contact.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Contd. on page 7)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 6)

- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Harmful to aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

08 01 11*	waste paint and varnish containing organic solvents or other dangerous substances
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- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

· **Land transport ADR/RID (cross-border)**



- **ADR/RID class:** 3 (F1) Flammable liquids.
- **Danger code (Kemler):** 30
- **UN-Number:** 1263
- **Packaging group:** III
- **Hazard label:** 3
- **UN proper shipping name:** 1263 PAINT RELATED MATERIAL, special provision 640E
- **Tunnel restriction code** D/E

· **Maritime transport IMDG:**



- **IMDG Class:** 3
- **UN Number:** 1263
- **Label** 3
- **Packaging group:** III
- **EMS Number:** F-E,S-E
- **Marine pollutant:** No

(Contd. on page 8)

**Trade name: 4CR 0408 2K-HS-Härter Low VOC standard**

(Contd. of page 7)

· **Proper shipping name:** PAINT RELATED MATERIAL

· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 3  
 · **UN/ID Number:** 1263  
 · **Label:** 3  
 · **Packaging group:** III  
 · **Proper shipping name:** PAINT RELATED MATERIAL

· **Special precautions for user Warning:** Flammable liquids.  
 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

### 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
 · **National regulations:**

· **Information about limitation of use:**

112-07-2 2-butoxyethyl acetate

4

Class	Share in %
NK	25-50

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H226 Flammable liquid and vapour.  
 H304 May be fatal if swallowed and enters airways.  
 H312 Harmful in contact with skin.  
 H317 May cause an allergic skin reaction.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.  
 H335 May cause respiratory irritation.  
 H336 May cause drowsiness or dizziness.  
 H411 Toxic to aquatic life with long lasting effects.

R10 Flammable.  
 R20/21 Harmful by inhalation and in contact with skin.  
 R36 Irritating to eyes.  
 R37 Irritating to respiratory system.  
 R43 May cause sensitisation by skin contact.  
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
 R65 Harmful: may cause lung damage if swallowed.  
 R66 Repeated exposure may cause skin dryness or cracking.  
 R67 Vapours may cause drowsiness and dizziness.

· **Department issuing MSDS:** Laboratory